IMPROVING MODERN METHODS OF TEACHING ENGINEERING GRAPHICS

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Abstract: *The teaching of engineering graphics is becoming more complex today with the development of technology to create new opportunities. With the help of new teaching methods, interactive tools and digital technologies, students can be provided with more effective knowledge. This article considers ways to improve modern methods of teaching engineering graphics.*

Keywords: *Interactive, Moodle, Google Classroom, AutoCAD, SolidWorks, CATIA, Inventor, Zoom, Microsoft Teams, Differential Education.*

The profession of a teacher is the most honorable of all professions and, in essence, the most necessary for society. This profession provides young people with knowledge about the life of society, all its riddles, which they will need throughout their lives. It equips the younger generation with high and noble qualities, teaches them to fight ignorance and evil vices in people. It transfers the historical experiences of people in the past to young people. It acts as an intermediary for our society in this regard. As a result, the ground is created for the development of our society[4].

1. Modern teaching methods:

In addition to traditional methods, it is important to use modern technologies in teaching engineering graphics. These methods can take the following forms:

Interactive learning platforms: Online learning systems, such as Moodle or Google Classroom, provide students with textbooks, assignments, interactive exercises, and learning materials that help students work independently.

3D design and modeling programs: Students learn to create and analyze graphics using programs such as AutoCAD, SolidWorks, CATIA, Inventor. Using these programs not only teaches understanding graphics, but also geometric and mechanical modeling.

Virtual and Augmented Reality: Using virtual reality (VR) and augmented reality (AR) technologies in education can make engineering graphics subjects more interactive and lively. For example, students can create 3D models in a virtual environment and see how they will look in the real world.

2. Visualization and interactive learning materials:

Visualization plays a major role in teaching engineering graphics. Students need to be taught how to interpret geometric shapes, technical drawings, and other multidimensional images. Modern graphics, animations, and interactive visualizations can help students understand concepts clearly and effectively.

3D Animations: 3D animations and visuals are a great way to explain complex technical processes or mechanical systems to students.

Simulations: In engineering graphics, students can be taught how to work with graphics and mechanical systems using simulation software. These technologies include computer-aided design (CAD), computational tools, and simulation software.

3. Collaborative learning and engineering practice preparation:

Engineering graphics not only develops technical knowledge, but also skills such as teamwork, creative thinking, and problem solving. Therefore, it is necessary to encourage students to work in teams during the teaching process. Working together creates the opportunity to find effective solutions to engineering problems.

Group work and project-based learning: Teaching students to work on projects shows them how to collaborate in engineering design and manufacturing processes.

Practical training: Practical training in engineering graphics helps students become familiar with real production processes, which improves their practical skills.

4. Online and distance learning methods:

Distance learning is becoming more and more popular these days, especially after the pandemic. Engineering graphics can also be effectively taught in a distance learning format.

Video lessons: Students can watch videos and lesson materials prepared by the teacher at any time and reinforce their knowledge.

Virtual classes and workshops: Provides the opportunity to conduct classroom lessons, ask students interactive questions, and complete practical exercises through platforms such as Zoom and Microsoft Teams.

5. Pedagogical approach and individual approach:

It is important to implement an individual approach, taking into account the different levels of knowledge and skills of students. Through teaching methods that are adapted to the specific needs of students, each student can achieve maximum results.

Differentiated learning: Dividing students into different groups based on their knowledge level and providing them with special exercises and materials.

Student self-assessment system: Providing students with the opportunity to independently assess their achievements and shortcomings increases their motivation for the learning process.

Conclusion: Modern methods of teaching engineering graphics help students develop their knowledge in a more effective and practical way. Through interactive technologies, 3D design programs, collaborative work and distance learning methods, the process of teaching this subject becomes more effective and interesting. In the future, further improvement of these methods and introduction of new technologies will serve to provide education tailored to the specific needs of students.

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